Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of the Claims

1. (Currently Amended) A method for providing accelerated loading of an operating system, comprising the steps of:

maintaining a list of boot data used for booting a computer system;

initializing a central processing unit of the computer system;

preloading the boot data into a cache memory prior to completion of initialization of the central processing unit of the computer system, wherein preloading the boot data comprises accessing compressed boot data from a boot device; and

servicing requests for boot data from the computer system using the preloaded boot data after completion of initialization of the central processing unit of the computer system, wherein servicing requests comprises accessing compressed boot data from the cache and decompressing the compressed boot data <u>at a rate that increases the effective access rate of the cache</u>.

2. (Original) The method of claim 1, wherein the boot data comprises program code associated with one of an operating

system of the computer system, an application program, and a combination thereof.

3.   (Canceled)

4.   (Currently Amended) The method of claim 1, wherein the preloading ~~the method steps are~~ is performed by a data storage controller connected to the boot device.

5.   (Currently Amended) The method of claim 1, further comprising ~~the step of~~ updating the list of boot data ~~during the boot process~~.

6.   (Original) The method of claim 5, wherein the step of updating comprises adding to the list any boot data requested by the computer system not previously stored in the list.

7.   (Original) The method of claim 5, wherein the step of updating comprises removing from the list any boot data previously stored in the list and not requested by the computer system.

8-12. (Cancelled)

13. (Currently Amended) A system ~~boot device controller~~ for providing accelerated loading of an operating system of a host system ~~system, the boot device controller~~ comprising:

a digital signal processor (DSP) or controller ~~comprising a data compression engine (DCE) for compressing boot data stored to a boot device and for decompressing compressed boot data retrieved from the boot device;~~

~~a programmable volatile logic device, wherein the programmable volatile logic device is programmed by the DSP or controller prior to completion of initialization of a central processing unit of the host system, to (i) instantiate a first interface for operatively interfacing the boot device controller to the boot device and to (ii) instantiate a second interface for operatively interfacing the boot device controller to the host system;~~

a cache memory device; and

a non-volatile memory device, for storing logic code associated with the DSP or controller, ~~the first interface and the second interface,~~ wherein the logic code comprises instructions executable by the DSP or controller for maintaining a list of boot data used for booting the host system, for preloading the compressed boot data into the cache memory device prior to completion of initialization of the central processing unit of the host system, and for decompressing the preloaded

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compressed boot data, at a rate that increases the effective

access rate of the cache, to service requests for boot data from

the host system after completion of initialization of the

central processing unit of the host system.

14.   (Canceled)

15.   (Currently Amended) The ~~boot device controller~~ system

of claim 13, wherein the logic code in the non-volatile memory

device further comprises program instructions executable by the

DSP or controller for maintaining a list of application data

associated with an application program; preloading the

application data upon launching the application program, and

servicing requests for the application data from the host system

using the preloaded application data.

16.   (Canceled)

17.   (Previously presented) The method of claim 1, further

comprising:

    maintaining a list of application data associated with an

application program;

    preloading the application data into the cache memory prior

to completion of initialization of the central processing unit

of the computer system, wherein preloading the application data comprises accessing compressed application data from a boot device; and

servicing requests for application data from the computer system using the preloaded application data after completion of initialization of the central processing unit of the computer system, wherein servicing requests comprises accessing compressed application data from the cache and decompressing the compressed application data.

18.   (New) The method of claim 1, further comprising a data compression engine for compressing, wherein the compressing provides the compressed boot data and the data compression engine provides the compressed boot data to the boot device.

19.   (New) The method of claim 1, wherein the decompressing is provided by a data compression engine.

20.   (New) The method of claim 1, further comprising a data compression engine for compressing, wherein the compressing provides the compressed boot data, the data compression engine provides the compressed boot data to the boot device, and the decompressing is provided by the data compression engine.

21. (New) The method of claim 1, wherein the compressed boot data is accessed via direct memory access.

22. (New) The method of claim 1, wherein Huffman encoding is utilized to provide the compressed boot data.

23. (New) The method of claim 1, wherein Lempel-Ziv encoding is utilized to provide the compressed boot data.

24. (New) The method of claim 1, wherein a plurality of encoders are utilized to provide the compressed boot data.

25. (New) The method of claim 1, wherein a plurality of encoders in a parallel configuration are utilized to provide the compressed boot data.

26. (New) The system of claim 13, wherein Huffman encoding is utilized to provide the compressed boot data.

27. (New) The system of claim 13, wherein Lempel-Ziv encoding is utilized to provide the compressed boot data.

28. (New) The system of claim 13, wherein a plurality of encoders are utilized to provide the compressed boot data.

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29. (New) The system of claim 13, wherein a plurality of encoders in a parallel configuration are utilized to provide the compressed boot data.

30. (New) A method comprising:

maintaining a list of boot data used for booting a computer system;

initializing a central processing unit of the computer system;

preloading boot data in compressed form, based on the list of boot data, from a boot device into a cache memory prior to completion of initialization of the central processing unit;

servicing requests for boot data from the computer system using the preloaded compressed boot data after completion of initialization of the central processing unit, wherein servicing requests comprises accessing the compressed boot data from the cache and decompressing the compressed boot data with a data compression engine and the data compression engine being operable to compress additional boot data and store the additional compressed boot data to the boot device.

31.   (New) The method of claim 30, wherein Huffman encoding is utilized by the data compression engine to compress the additional boot data.

32.   (New) The method of claim 30, wherein Lempel-Ziv is utilized by the data compression engine to compress the additional boot data

33.   (New) The method of claim 30, wherein a plurality of encoders are utilized by the data compression engine to compress the additional boot data.

34.   (New) The method of claim 30, wherein a plurality of encoders in a parallel configuration are utilized by the data compression engine to compress the additional boot data.

35. (New) A system comprising:

a boot device;

a processor;

cache memory; and

non-volatile memory for storing logic code for use by the processor, the logic code being used for:

maintaining a list associated with boot data, wherein the boot data is used in booting a first system;

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preloading compressed boot data associated to the list into the cache memory prior to completion of initialization of a central processing unit of the first system; and

servicing requests for the compressed boot data from the first system after completion of initialization of the central processing unit; and

a data compression engine for decompressing the compressed boot data accessed from the cache memory for use in responding to the servicing requests and for compressing additional boot data and storing the additional compressed boot data to the boot device.

36. (New) The system of claim 35, wherein Huffman encoding is utilized by the data compression engine to compress the additional boot data.

37. (New) The system of claim 35, wherein Lempel-Ziv is utilized by the data compression engine to compress the additional boot data

38. (New) The system of claim 35, wherein a plurality of encoders are utilized by the data compression engine to compress the additional boot data.

39.　(New) The system of claim 35, wherein a plurality of encoders in a parallel configuration are utilized by the data compression engine to compress the additional boot data.